

REMARKS

Summary of the Office Action

Claims 1 – 5, 9, 12 – 14, 16, 17, and 19 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Korean Pre Grant Publication KR20020046534 (“Chun”) in view of U.S. Patent No. 6,101,892 (“Berlinger”).

Claims 6 – 8 and 18 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Chun and Berlinger further in view of U.S. Patent No. 2,760,381 (“Pickles”).

Claims 10, 11, and 15 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Chun and Berlinger further in view of U.S. Pre-Grant Publication No. 2002/0051860 (“Hiroi”).

Summary of the Response to the Office Action

Applicants thank the Examiner for the courtesies extended to Applicants’ representatives during the telephonic Examiner Interview conducted December 6, 2010.

Applicants amend independent claims 1 and 16 to recite that “the effective profiles of the tooth flanks continuously mesh over the tooth flanks’ entire surface.” Support for these amendments is found in at least Figs. 2a and 2b and the paragraph beginning on page 11, line 7 of the specification as filed (paragraph [0034] of the published application). Thus, Applicants submit that the above amendments introduce no new matter within the meaning of 35 U.S.C. §132, and respectfully request reconsideration and timely withdrawal of the pending rejections for at least the reasons discussed below.

Summary of the Examiner Interview

Applicants thank the Examiner for the courtesies extended to Applicants' representatives during the telephonic Examiner Interview conducted on December 6, 2010. During the interview Applicants representatives presented a brief overview of the claimed subject matter, and discussed how the claims as presented are patentable over the references of record. The Examiner respectfully disagreed, and suggested that the claims be amended to incorporate language respectfully reciting a continuous meshing operation over the entire surface of the tooth flank in order to overcome the references of record.

The Rejections under 35 U.S.C. § 103

Claims 1 – 19 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Chun in view of one or more of Berlinger, Pickles, and Hiroi. Applicants respectfully submit that the combined references do not disclose or suggest all of the claimed features, nor would a person of ordinary skill in the relevant field have been prompted to combine the cited prior art in the manner claimed. To establish an obviousness rejection under 35 U.S.C. § 103(a), four factual inquiries must be examined. The four factual inquiries include (a) determining the scope and contents of the prior art; (b) ascertaining the differences between the prior art and the claims in issue; (c) resolving the level of ordinary skill in the pertinent art; and (d) evaluating evidence of secondary consideration. *Graham v. John Deere*, 383 U.S. 1, 17-18 (1966). In view of these four factors, the analysis supporting a rejection under 35 U.S.C. 103(a) should be made explicit, and should “identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. *KSR Int’l. Co. v. Teleflex, Inc.*,

127 S. Ct. 1727, 1741 (2007). Furthermore, even if the prior art may be combined, there must be a reasonable expectation of success, and the reference or references, when combined, must disclose or suggest all of the claim limitations. See *in re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In view of the above, Applicants amend independent claims 1 and 16 to recite in part that “the effective profiles of the tooth flanks continuously mesh over the tooth flanks’ entire surface” and respectfully submit that the cited references fail at least to disclose or suggest this feature of claims 1 and 16. In contrast to amended claims 1 and 16, and as admitted by the Examiner, Chun does not expressly disclose:

the tooth flanks of said toothed gear wheels comprising an involute-free mesh profile in the force transmission area, and transition from a concave area directly to a convex area, effective profiles of said tooth flanks matching in a manner that the meshing of the tooth flanks occurs at planiform contact regions, linearly viewed in cross section, along their complete height, and the effective profiles of the tooth flanks coordinated with each other over their entire height, thereby establishing said planiform contact regions, linearly viewed in cross section, along their complete height.

Further, Berlinger col. 4, lines 60 – 65 refers to a design profile where “there is no contact within the transition zones.” Berlinger at col. 4, lines 57 and 58 (emphasis added). As Berlinger discloses:

FIG. 2 shows the transverse section profiles of a 15-tooth pinion and a 90-tooth gear, which may be designed so that there [sic] no contact is made along the transition zones 20a and 22a This no contact condition is shown in FIG. 2A. Transition zones 20a and 20b of the right-most teeth of gears 20 and 22 are shown spaced apart (i.e. not in contact). (Emphasis added).

Thus, rather than teaching or suggesting that “the effective profiles of the tooth flanks continuously mesh over the tooth flanks’ entire surface” Berlinger requires that “no contact is

made along the transition zones.” *Id.* (Emphasis added). This is the opposite of the continuous meshing recited in amended claims 1 and 16. Thus, alone or combined with Chun, Berlinger fails to teach or suggest each and every feature of amended claims 1 and 16.

The remaining references fail to make up for the deficiencies of Chun and Berlinger. Specifically, the other references are cited as allegedly teaching additional features of claims 1 – 19, but not for teaching or suggesting the features discussed above. Thus, even if one of ordinary skill in the art were to combine Chun and Berlinger with one or more of the remaining references, the combined references still fail to teach or suggest each and every feature of amended claims 1 and 16.

For at least these reasons, Applicants submit that amended independent claims 1 and 16 are allowable. Applicants further respectfully submit that claims 2 – 15 and 17 – 19 are also allowable, at least because they depend from allowable claims 1 and 16 respectively. Since none of the other prior art of record, whether taken alone or in any combination, discloses or suggests all the features of the claimed subject matter, Applicants respectfully submit that claims 1 – 19 are allowable. For at least these reasons, Applicants respectfully request that the rejections of claims 1 – 19 under 35 U.S.C. §103(a) be withdrawn.

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CONCLUSION

Applicants believe that a full and complete response has been made to the pending Office Action and respectfully submit that all of the stated grounds for rejection have been overcome or rendered moot. Accordingly, Applicant respectfully submits that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,
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